

7. APPENDICES

Appendix 1. Nutrition Facts of Pasteurized Nonfat Milk from Diamond

| Compositions | Content |
|---------------------------|---------|
| Total energy (kcal/250ml) | 90 |
| Protein (g/250ml) | 10 |
| Fat (g/250ml) | 0 |
| Carbohydrate (g/250ml) | 12 |

Appendix 2. The Results of SPSS Analysis

a. Normality Test of pH Measurement

One-Sample Kolmogorov-Smirnov Test

| | | pH Measurement After Inactivation |
|----------------------------------|----------------|---|
| N | | 144 |
| Normal Parameters ^{a,b} | Mean | 6.1127 |
| | Std. Deviation | .04981 |
| Most Extreme Differences | Absolute | .101 |
| | Positive | .004 |
| | Negative | -.101 |
| Kolmogorov-Smirnov Z | | 1.212 |
| Asymp. Sig. (2-tailed) | | .108 |

a. Test distribution is Normal.

b. Calculated from data.

b. Univariate Analysis of Variances of pH Measurement

Levene's Test of Equality of Error Variances^a

Dependent Variable: pH Measurement After Inactivation

| F | df1 | df2 | Sig. |
|--------|-----|-----|------|
| 39.270 | 11 | 132 | .000 |

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Treatment

Tests of Between-Subjects Effects

Dependent Variable: pH Measurement After Inactivation

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|-----------------|-------------------------|-----|-------------|--------------|------|
| Corrected Model | .293 ^a | 11 | .027 | 56.689 | .000 |
| Intercept | 5380.589 | 1 | 5380.589 | 11456988.012 | .000 |
| Treatment | .293 | 11 | .027 | 56.689 | .000 |
| Error | .062 | 132 | .000 | | |
| Total | 5380.944 | 144 | | | |
| Corrected Total | .355 | 143 | | | |

a. R Squared = .825 (Adjusted R Squared = .811)

pH Measurement After Inactivation

Duncan^{a,b}

| Treatment | N | Subset | | | | | | | |
|------------------------------------|----|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Papain Hydrolysis Time 10 Hours | 12 | 6.0508 | | | | | | | |
| Papain Hydrolysis Time 8 Hours | 12 | 6.0583 | 6.0583 | | | | | | |
| Bromelain Hydrolysis Time 10 Hours | 12 | | 6.0717 | 6.0717 | | | | | |
| Papain Hydrolysis Time 6 Hours | 12 | | 6.0733 | 6.0733 | | | | | |
| Bromelain Hydrolysis Time 8 Hours | 12 | | | 6.0782 | | | | | |
| Bromelain Hydrolysis Time 6 Hours | 12 | | | | 6.1108 | | | | |
| Papain Hydrolysis Time 4 Hours | 12 | | | | 6.1200 | 6.1200 | | | |
| Papain Hydrolysis Time 2 Hours | 12 | | | | | 6.1333 | 6.1333 | | |
| Bromelain Hydrolysis Time 4 Hours | 12 | | | | | 6.1350 | 6.1350 | | |
| Bromelain Hydrolysis Time 2 Hours | 12 | | | | | | 6.1482 | | |
| Papain Hydrolysis Time 0 Hours | 12 | | | | | | | 6.1717 | |
| Bromelain Hydrolysis Time 0 Hours | 12 | | | | | | | | 6.1982 |
| Sig. | | .398 | .112 | .429 | .302 | .112 | .093 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .000.

a. Uses Harmonic Mean Sample Size = 12.000.

b. Alpha = .05.

c. Normality Test of DH

One-Sample Kolmogorov-Smirnov Test

| | | Determination of Degree of Hydrolysis (DH) (%) |
|----------------------------------|----------------|--|
| N | | 144 |
| Normal Parameters ^{a,b} | Mean | .567372 |
| | Std. Deviation | .1294848 |
| Most Extreme Differences | Absolute | .083 |
| | Positive | .042 |
| | Negative | -.083 |
| Kolmogorov-Smirnov Z | | .997 |
| Asymp. Sig. (2-tailed) | | .273 |

a. Test distribution is Normal.

b. Calculated from data.

d. Univariate Analysis of Variances of DH

Levene's Test of Equality of Error Variances^a

Dependent Variable: Determination of Degree of Hydrolysis (DH) (%)

| F | df1 | df2 | Sig. |
|--------|-----|-----|------|
| 18.508 | 11 | 132 | .000 |

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Treatment

Tests of Between-Subjects Effects

Dependent Variable: Determination of Degree of Hydrolysis (DH) (%)

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|-----------------|-------------------------|-----|-------------|----------|------|
| Corrected Model | 1.308 ^a | 11 | .119 | 14.374 | .000 |
| Intercept | 48.355 | 1 | 48.355 | 5610.788 | .000 |
| Treatment | 1.308 | 11 | .119 | 14.374 | .000 |
| Error | 1.091 | 132 | .008 | | |
| Total | 48.752 | 144 | | | |
| Corrected Total | 2.397 | 143 | | | |

a. R Squared = .545 (Adjusted R Squared = .507)

Determination of Degree of Hydrolysis (DH) (%)

| Duncan ^{a,b} | | Subset | | | | |
|------------------------------------|----|---------|---------|---------|---------|---------|
| Treatment | N | 1 | 2 | 3 | 4 | 5 |
| Bromelain Hydrolysis Time 0 Hours | 12 | .304267 | | | | |
| Papain Hydrolysis Time 0 Hours | 12 | | .478558 | | | |
| Bromelain Hydrolysis Time 2 Hours | 12 | | .509350 | .509350 | | |
| Bromelain Hydrolysis Time 4 Hours | 12 | | .548433 | .548433 | .548433 | |
| Bromelain Hydrolysis Time 6 Hours | 12 | | | .583683 | .583683 | .583683 |
| Bromelain Hydrolysis Time 10 Hours | 12 | | | | .601300 | .601300 |
| Bromelain Hydrolysis Time 8 Hours | 12 | | | | .602208 | .602208 |
| Papain Hydrolysis Time 2 Hours | 12 | | | | .610292 | .610292 |
| Papain Hydrolysis Time 4 Hours | 12 | | | | .629842 | .629842 |
| Papain Hydrolysis Time 6 Hours | 12 | | | | | .644708 |
| Papain Hydrolysis Time 8 Hours | 12 | | | | | .646908 |
| Papain Hydrolysis Time 10 Hours | 12 | | | | | .650908 |
| Sig. | | 1.000 | .069 | .059 | .055 | .127 |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .008.

a. Uses Harmonic Mean Sample Size = 12.000.

b. Alpha = .05.

e. Normality Test of DPPH

| One-Sample Kolmogorov-Smirnov Test | | | DPPH Radical-Scavenging Activity (%) |
|------------------------------------|----------------|--|--------------------------------------|
| N | | | 144 |
| Normal Parameters ^{a,b} | Mean | | .732388 |
| | Std. Deviation | | .0121348 |
| Most Extreme Differences | Absolute | | .080 |
| | Positive | | .080 |
| | Negative | | -.048 |
| Kolmogorov-Smirnov Z | | | .958 |
| Asymp. Sig. (2-tailed) | | | .321 |

a. Test distribution is Normal.

b. Calculated from data.

f. Univariate Analysis of Variances of DPPH

Levene's Test of Equality of Error Variances^a

Dependent Variable: DPPH Radical-Scavenging

Activity (%)

| F | df1 | df2 | Sig. |
|-------|-----|-----|------|
| 1.632 | 11 | 132 | .097 |

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Treatment

Tests of Between-Subjects Effects

Dependent Variable: DPPH Radical-Scavenging Activity (%)

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|-----------------|-------------------------|-----|-------------|------------|------|
| Corrected Model | .008 ^a | 11 | .001 | 7.911 | .000 |
| Intercept | 77.241 | 1 | 77.241 | 803428.183 | .000 |
| Treatment | .008 | 11 | .001 | 7.911 | .000 |
| Error | .013 | 132 | 9.814E-5 | | |
| Total | 77.262 | 144 | | | |
| Corrected Total | .021 | 143 | | | |

a. R Squared = .397 (Adjusted R Squared = .347)

DPPH Radical-Scavenging Activity (%)

Duncan^{a,b}

| Treatment | N | Subset | | |
|------------------------------------|----|---------|---------|---------|
| | | 1 | 2 | 3 |
| Papain Hydrolysis Time 6 Hours | 12 | .723617 | | |
| Papain Hydrolysis Time 8 Hours | 12 | .723667 | | |
| Papain Hydrolysis Time 10 Hours | 12 | .723683 | | |
| Papain Hydrolysis Time 4 Hours | 12 | .724767 | | |
| Papain Hydrolysis Time 2 Hours | 12 | .726267 | | |
| Papain Hydrolysis Time 0 Hours | 12 | .729142 | .729142 | |
| Bromelain Hydrolysis Time 8 Hours | 12 | | .737150 | .737150 |
| Bromelain Hydrolysis Time 10 Hours | 12 | | .737267 | .737267 |
| Bromelain Hydrolysis Time 6 Hours | 12 | | | .738175 |
| Bromelain Hydrolysis Time 4 Hours | 12 | | | .738592 |
| Bromelain Hydrolysis Time 2 Hours | 12 | | | .740767 |
| Bromelain Hydrolysis Time 0 Hours | 12 | | | .745567 |
| Sig. | | .235 | .058 | .087 |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 9.61E-005.

a. Uses Harmonic Mean Sample Size = 12.000.

b. Alpha = .05.

g. Kinetic Analysis of pH of Papain Hydrolysate

Parameter Estimates

| Parameter | Estimate | Std. Error | 95% Confidence Interval | |
|-----------|----------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| a | 6.180 | .015 | 6.140 | 6.221 |
| b | -.009 | .001 | -.013 | -.005 |

h. Kinetic Analysis of pH of Bromelain Hydrolysate

Parameter Estimates

| Parameter | Estimate | Std. Error | 95% Confidence Interval | |
|-----------|----------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| a | 6.193 | .014 | 6.155 | 6.232 |
| b | -.008 | .001 | -.012 | -.005 |

i. Kinetic Analysis of DH of Papain Hydrolysate

Parameter Estimates

| Parameter | Estimate | Std. Error | 95% Confidence Interval | |
|-----------|----------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| A | 5.299 | .050 | 5.160 | 5.438 |
| B | .060 | .005 | .045 | .074 |

j. Kinetic Analysis of DH of Bromelain Hydrolysate

Parameter Estimates

| Parameter | Estimate | Std. Error | 95% Confidence Interval | |
|-----------|----------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| A | 4.300 | .066 | 4.118 | 4.482 |
| B | .124 | .008 | .101 | .147 |

k. Kinetic Analysis of DPPH of Papain Hydrolysate

Parameter Estimates

| Parameter | Estimate | Std. Error | 95% Confidence Interval | |
|-----------|----------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| a | 3.916 | 2.378 | -2.685 | 10.517 |
| b | .053 | .342 | -.897 | 1.003 |

l. Kinetic Analysis of DPPH of Bromelain Hydrolysate

Parameter Estimates

| Parameter | Estimate | Std. Error | 95% Confidence Interval | |
|-----------|----------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| a | 1.976 | .895 | -.509 | 4.461 |
| b | .124 | .250 | -.571 | .818 |

Appendix 3. Plagiarism